



INFORMATION PROCESSING: KEY TO KNOWLEDGE BUILDING IN ARCHITECTURAL DESIGN STUDIO

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ABSTRACT

In the information age, easy information does not allow systematic processing of the data to generate knowledge. The paper is concerned with issue as how to prepare future designers to practice knowledgeably in rapidly transforming professional world. Heightened information sources at fingertips without its authenticity being one of the serious threats. There could be various methods to help students and young minds to gain knowledge through processing information, which can be used to deal with design issues in better ways. The paper explores different methods of processing information, which when brought into practice or routine by a student, helps to build their knowledge base. Further, it demonstrates how similar practices were carried out in second year architectural design studio at the institute.

KEY WORDS: Design process, Information, Knowledge, information processing mediums.

1. INTRODUCTION

Design is a process that involves phases of analytical understanding, critical thinking, and creative decision making (Salama, A., 2005). In architectural design studios, an educator takes care to help student go through each of these phases with help of different approaches and methodologies. It basically thrives to create a logical understanding of various different parameters of design and train young minds to assimilate information so that it percolates and gets registered deep in their minds. This processed information, when brought into practice or routine by a student, helps to build their knowledge base.

Moreover, a holistic education aims at addressing the whole person, developing the personalities of students in different dimensions, making them know how to acquire knowledge, to communicate, to be aware of his own values, and those of the other's as well. (Farivarsadri, G., 2001) The paper demonstrates a design assignment carried out with IV semester (II year) B.Arch students. It shows a process adopted for design assignment, basically to transmit knowledge and train students for future.

The challenge for today's educators is to make students ready for future, focusing on development of logics and understanding relevance of process, thus helping student to cope up with changing requirements and technology. With omnipresence of information, if student does not depend only upon ready information, but is trained to process it and develop knowledge about the subject, he could design better. After all, ready information poses challenge for architectural education, and ultimately innovative and creative practices for society through design solutions.

"With easy availability of information because of revolution in field of information technology and globalization, the age old methods of teaching and learning need to be changed" (Chakradeo, U., 2008). The young designer should realize that a design is evolved through systematic process, which is supported by technical and logical information. This logical information or processed information, ultimately leads to knowledge apprehension. Moreover, it make sure that the final product may not be very important at this level but student is trained for going through processing so that in future any challenge could be handled upon easily through the acquired knowledge.

2. METHOD

Architectural design subject is core of architectural education, which involves application of all the subjects learnt in the curriculum. Dutton, 1996 claims that studios are the site, which define what is important to know, how it is to be known, helping to construct views, values and attitude.

"Design studio is the kiln where future architects are moulded. It is a space where budding professionals explore their creative skills, which are so prized by the profession" (Salama, A., 1995). Thus how an assignment is introduced and how it progresses further with different stages in a studio is also crucial. There are certain do's that had been finalized before conceiving the design assignment as given below.

2.1 Objectives of design assignment

The objective of the task was set as per the university syllabus, which included application of materials and construction technology, and climate responsive building. Along with those mentioned, there are many undefined intangible objectives which described as hidden curriculum. Dutton, 1996 states; "Hidden Curriculum" refers to those unstated values, attitudes and norms which are totally

held back from the social relation of school and classroom as well as context of work. These objectives are not described in this paper.

2.2 Scale of project

This assignment was framed for second year (fourth semester) students; taking this into consideration the scale of project was set. A small cottage industry, which houses not more than 20 workers, was thus the assigned task. The reason behind selection of less number of occupancy was to avoid diversion of students mind towards any issues, other than the objectives and to fulfill those thoroughly within stipulated time frame.

2.3 Design output

The design process involves designing as a separate stage and physical output as different. This helps to concentrate student on reasoning of every small aspect, before putting it down onto paper. Moreover, processing information throughout the journey is the key of the process, and output is secondary.

Design is a journey, not a means to end'-Mark Wigley, Dean of Columbia University GSAPP

2.4 Working in 3D

The above point implies that each of the stages in design process is not dealt on paper. Rather they are thought, dealt, rectified, and synthesized mostly in model form. Since many students have a habit of finalizing plans and merely projecting to form elevations, working in model helps them to arrive at interesting form.

2.5 Assignment introduction stage

Students are introduced to design assignment (title) at required stage. There are chances of assumptions and speculations by student, when a topic is introduced. In order to make student go through some pre-design task and gain necessary information about the subject matter, this procedure is adopted. Thus design stage is followed after pre-design task.

2.6 Design is based on logics

It is seen that students tend to incline towards what they want or like, rather than what is need. In order to keep check on this, approach should be backed up by logical reasoning. Thus studio is based on form follows function and feelings should not supersede function. This ensures that the design is logical and workable.

2.7 Task allocation

There are certain tasks, where a single person cannot handle at ease or even has limitations of bringing out options. Taking this into consideration, tasks are either allotted individually or to group of students. Most of the pre-design tasks which are meant to clarify basics are conducted in groups to have variety of outputs. This even ensures learning various dimensions pertaining to the subject.

2.8 Design process

There is a common process though which every student evolves design. There could be various different methods, but a common process ensures covering every aspect of design which the objectives intend. Methods may change looking at students approach or inclination, which retains enjoyment in the process.

3. DESIGN PROCESS

Design process involved three important stages

3.1 Pre-design

This stage was to bridge gap between the two intended objectives

- Climate responsive building
- Use of suitable material and construction technique (non R.C.C)

3.2 Design

This stage was meant to develop a form suitable to climate using process which involved

- Analysis of climatic region allotted
- Understanding activity
- Spatial requirements and space allocation
- Zoning
- Identifying issues
- Case studies for passive techniques
- Refining and detailing

3.3 Physical output

This stage was dealt in two steps

- Preparation of 2D drawings evolved through above process on rough tracings for evaluation.
- Presenting drawings so as to explain design, which thus might include details, text, any other graphics, etc.

4.MEDIUMS

Out of the three stages in design process mentioned above, first two stages involve building up logics and framework of design. In other words, ideas are generated and refined in these stages. Here it becomes very necessary to have certain mediums so that available information is analyzed and used in logical manner.

There are various mediums through which learning's could be derived. Thus if the students knows how to process different information and what are the diverse mediums, knowledge building is easier in the future also. This also makes sure that the information which is not authentic would be overruled. (Salama.A, 2005)

Various processing mediums**4.1 Model**

Working on scaled models gives an insight of actual form conceived. It gives an opportunity for experimentation and exploration along with an idea of experience of form and volume resulting in ease of decision making. Physical models are used for multiple reasons ranging for exploration, learning, and experimentation to presentation.

4.2 Lecture

There are numerous interdisciplinary ideas which a design process involves. Lectures or lessons help students to understand importance and application of that subject matter while designing. It also helps them understand as how the ideas could be materialized and conceived. These could be delivered by in house facul-

ties or expert guest lecturers.

4.3 Activity

These includes various games; physical or mental exercises which makes students to understand issues easily and with fun. The most important thing here is the type of instructions given which are formulated on the basis of desired result, thus reverse thinking process is applied by teachers here.

4.4 Think tank

Design process involves conditions where students are encouraged to take responsibility to critique one another. Thus, they get feedback from instructors through group reviews and pin-ups. Think tank concept is also introduced to students for analyzing design of their colleagues in group. The analysis is to find, if they are on right track or not. It is done with the help of key points of analysis provided by the teachers with mentioned instructions. (Salama.A, 2005)

4.5 Hands on

Experiencing, handling, observing helps students to develop easy understanding about a subject. Thus hands on is encouraged when it comes to understanding materials, etc.

4.6 Visual

With fast development of world, documented works all over the world are available easily; it is thus simple to orient students in a proper/specified direction through the documentaries or visuals wherever needed.

4.7 Resource person

There is certain traditional knowledge based information, which is not documented in books. It comes from experience of working in that field. Thus these experienced persons may even not be able to deliver lecture, but spending time with them and discussing out certain issues helps students to assess various possibilities.

4.8 Self-study

There are certain subjects which involve extensive reading. In such cases, students are either provided with handouts or reference book list which they can go through and develop an understanding about subject matter.

4.9 Case studies

This gives an opportunity for students to go through works of good architects and designers. It not only motivates students, but develops awareness about dealing with situations and innovatively handling them. It is very important in this case to make students understand right choice of the case. They should be made aware that a right case study is based upon similar issue or objective and not upon same name title.

4.10 Workshop

It is nothing but bundle of various processing mediums. The advantage of bundling is the continuous involvement of students and focus on the issue to be explored. It can be used to clarify various issues pertaining to a single subject.

5.RESULT**5.1 Pre-design**

The objective of this stage as already stated was to make students link two sets, first being material, form, structure and other being climate. Following process as described in Table 01 was adopted. Figures 01 shows photograph of the process described.

Table 01: Pre-design Process

Sr. No	Process	Information processing medium	Output	Focus
A	Composition of given 2D shapes	Model	Composition with various elements, combining rectilinear and curvilinear forms	Understanding that material properties and limitation governs the structural system for form development
	Extrusion of 2D shapes in 3D			
	Selection of a part in composition, making model in paper in bigger scale			
	Forces applied on paper model after lecture on forces that a structure needs to resist	Lecture, Activity	Students understood that only aesthetics doesn't make a structure stand	
	Models made in new allotted material representing actual material systems. Example-Broom sticks representing frame structure elements	Model, Think tank, Hands on	Trial and error of producing intended 3D composition out of given materials	
	Inputs regarding material properties and structural derivation for appropriate form	Lecture, Visual, Activity	Improved model, considering structural properties of material and creating intended form	
B	Study of vernacular buildings in allotted climatic zone on basis of its material and construction system	Self study	Developing relation between material, construction system and climate based objectives of a building	Understanding relation of climatic factors and building envelope, form, elements design
	Study of passive techniques used in the regions and making model of ideal building in allotted region	Model, Case study	Developing understanding of various techniques used in vernacular buildings	

Part A described in Table 01, was conducted as workshop of seven days, getting hands on experience with materials.

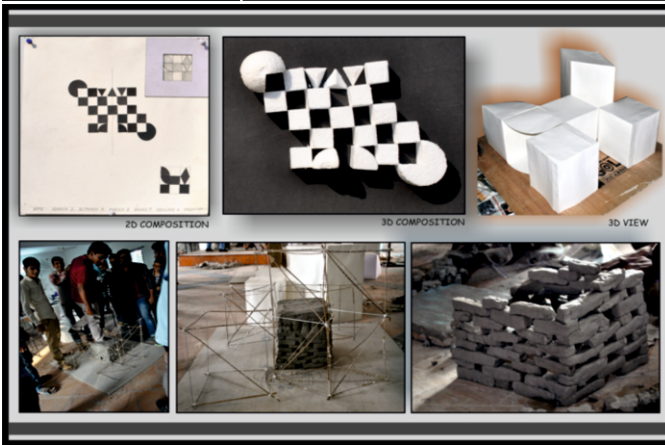


Figure 01: Photograph showing pre-design process

5.2 Design

This stage is the actual analysis and synthesis stage, wherein logics development and incorporation possibilities are explored. Since this stage also involves continuous evaluation of form according defined objectives, it is explored in model form. Following process as described in the Table 02 is followed. Figure 02 shows the photograph of process described.

Table 02: Design process

Sr. No	Process	Information processing medium	Output	Focus
A	Finding manufacturing process of allotted products in given region. Example: Papad making in hot and dry/sweater weaving in shimla	Resource person, self study	Understanding activity and its need	Spatial arrangement of activities in 2D
	Spatial requirement and spatial arrangement of each activity	Model	Zoning of activities according to optimum circulation and climatic region	
	Making students understand meaning of self help group and showing documentaries of success stories of self help group	Visual, Think tank	Understanding limitations and constraints of design program	
B	Identifying issues in each space according to climatic comfort and find solutions in similar cases.	Case study, Think tank	3 D spaces and application of techniques as required	3D spatial organization
C	Working out fenestration details and other construction possibilities according to locally available material	Learning's from pre-design, Model		Detailing



Figure 02: Model showing passive techniques used in Jaisalmer (hot and dry region).

5.3 Physical output

This is the stage, which involves putting down design in drawing form for presentation. Thus it does not involve synthesis or analysis, hence no processing medium are required.

The design of cottage industry was proposed to be developed by a self help group, thus it involved understanding of what self help means and what are possibilities and constraints in such situations. thus apart from the main two design objectives mentioned, process of production in cottage industry, development of concept, working system of self help group, etc are to be presented in this stage. One of the output is demonstrated here in figure 03 and figure 04.

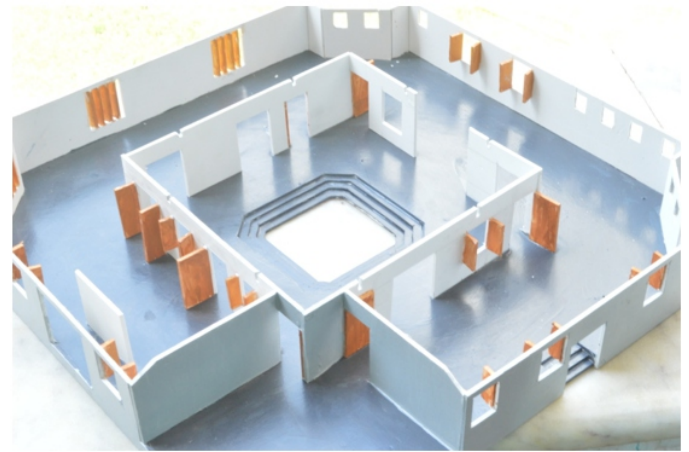


Figure 03: Model showing achievement of ventilated spaces in proposed industry in hot and humid region of Trivendrum.



Figure 04: Model showing spaces in designed industry in cold and cloudy region of Shimla.

7. DISCUSSION

The course curriculum of architecture aims at making students gain sufficient knowledge and get ready for its future application. A person acquires knowledge only when it is properly extracted from the information, goes through proper processing and finally is applied. The design exercise framed here is thus to make the young minds getting acquainted to various mediums which can be put to use for knowledge building. This approach ensures that a student is investigative and introspective, which adds to his design qualities. Hence it does not only aim at studies pertaining to studio but also developing personality and attitude.

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